

A3

signal conductor, a line conductor and a ground conductor links the housing 16 to a central computation and processing unit 24.

IN THE CLAIMS:

Please cancel claims ~~1-12~~ without prejudice or disclaimer.

Please add new claims 13-34 as follows:

A4

13. Measuring system for measuring at least one parameter that is indicative of a state of a tire of a vehicle, comprising:

on each wheel, a detector having a parameter sensor and a detector antenna tuned to a defined frequency,

a central data processing unit coupled by individual wire links to fixed antennas, each of the fixed antennas having an associated wheel and each of the fixed antennas being arranged near its associated wheel,

the parameter sensor comprising a transponder with a capacitor for storing power, the power being transmitted to the parameter sensor of the detector from an associated fixed antenna,

at least one of the associated fixed antenna and the detector antenna being a loop that is substantially centered over an axis of the associated wheel so that a communication link with the other one of the associated fixed antenna and the detector antenna corresponding to the associated wheel is

substantially independent of an angular position of the associated wheel, and

the detector antenna being insulated from the associated wheel rim when the wheel rim is made of metal.

4

14. System as claimed in claim 13, characterized in that the detector antenna is formed by one of a loop and a coil that is embedded in the interior of the tire.

15. System as claimed in claim 13, characterized in that the detector antenna is formed by one of a loop and a coil that is integrated into the tire.

16. System as claimed in claim 13, characterized in that the parameter sensor and the detector antenna of the detector are fixed on an annular support for running flat carried by the wheel rim.

17. System as claimed in claim 13 characterized in that the associated fixed antenna is formed by one of a loop and coil that is centered over the axis of the wheel and is carried by a part of a wheel suspension that is integral with the associated wheel.

18. System as claimed in claim 13 characterized in that the detector antenna and the parameter sensor of the detector are fixed to the interior surface of the tire.

19. System as claimed in claim 13 characterized in that the detector antenna and the parameter sensor of the detector are embedded in the interior of the tire.

4  
20. System as claimed in claim 13 characterized in that an interior zone of the tire is directly molded over the detector antenna and the parameter sensor of the detector.

21. System as claimed in claim 13 characterized in that the parameter sensor comprises a memory in which information identifying at least one of the tire, the wheel, and an annular support is stored during manufacture.

22. System as claimed in claim 13 characterized in that the detector antenna is in the form of one of a loop and a coil, the detector antenna being followed by a tuning circuit having an inductor and a capacitor, a rectifier and a circuit with at least one power storage capacitor, as well as a status device, which receives output signals of the parameter sensor and supplies a modulating signal to an impedance modulation circuit of the detector antenna.

23. System as claimed in claim 13 characterized in that the parameter sensor and the detector antenna are fixed to a wheel rim made of one of a non-conductive material and a weakly conductive material.

24. System as claimed in claim 13 characterized in that the parameter sensor and the detector antenna are integrated in a wheel rim made of one of a non-conductive material and a weakly conductive material.

25. System as claimed in claim 13 characterized in that the associated wheel also carries at least one of lateral, vertical and longitudinal acceleration measuring means, each of which is connected to the detector antenna.

A4  
26. System as claimed in claims 13 characterized in that the central data processing unit is configured successively to poll several parameter sensors carried by the associated wheel.

27. Detector for a vehicle wheel intended for a measuring system to measure at least one parameter that is indicative of a state of a tire, comprising:

a parameter sensor having a transponder with a rectifier for receiving radio frequency power and with a power storage capacitor, and

an antenna tuned to a defined radio frequency, the antenna being formed by one of a loop and coil,

the antenna and the parameter sensor being carried by one of an interior surface of the tire, a flat-running support, and a wheel rim,

the parameter sensor comprising a memory in which is stored information identifying at least one of the tire, the wheel rim, and the flat running support.

44 28. Measuring system for a vehicle having multiple wheels, each wheel having an associated tire, the measuring system comprising:

a detector having a parameter sensor and a detector antenna tuned to a defined frequency, the detector being at least partially located within a first vehicle tire and being fixed relative to the first tire for rotation about an axis, the detector measuring at least one tire condition parameter of the first tire,

a data processing unit mounted on the vehicle and coupled by individual wire links to a first fixed antenna being arranged near the first tire,

at least one of the first fixed antenna and the detector antenna being a loop that is substantially centered relative to the axis so that a communication link with the other one of the first fixed antenna and the detector antenna is substantially independent of an angular position of the first tire.

29. System as claimed in claim 28 wherein the first tire is mounted on a metal rim, the detector antenna being insulated from the metal rim.

30. System as claimed in claim 28 wherein a second fixed antenna is arranged near a second tire of the vehicle, the second fixed antenna being configured to communicate with another detector that is at least partially located within the second tire.

44

31. System as claimed in claim 28 wherein the parameter sensor includes a transponder with a capacitor for storing power, the power being transmitted to the parameter sensor of the detector from the first fixed antenna.

32. Measuring system for measuring at least one parameter that is indicative of a state of a tire mounted on a wheel of a vehicle, the system comprising:

an annular support for enabling operation of the wheel when the tire is flat, the annular support being supported on the wheel and within the tire, and

a sensor for sensing at least one parameter of the tire and for providing a signal indicative thereof, the sensor being supported by the annular support.

33. System as claimed in claim 32 characterized in that the sensor comprises a memory in which information identifying at least one of the annular support, the wheel, and the tire is stored.

Serial No. 10/005,091

14

34. System as claimed in claim 32 wherein the tire is mounted on a metal rim, the annular support insulating the detector antenna from the metal rim.